REMARKS/ARGUMENTS

Claims 1-29 have been cancelled. New claims 30-53 have been added. In previous Office Actions, the Examiner has relied chiefly on Sato (US 5,541,866), Yoshino (2004/0071299) and Wiser et al (US 7,016,746). While some of these references have already been discussed in previous amendments, a brief summary is included herein.

Sato discloses a device for correcting frequency characteristics of a sound field (Title). The device is essentially a graphic equalizer. Sato states that properly setting the center frequency, peak factor and gain parameters requires great skill because each adjustment of one parameter interferes with the other parameters. Therefore, Sato discloses a graphic equalizer that approximates some of the frequency parameters in order to reduce the skill required of a user to properly set an equalizer and obtain quality sound output (col. 1, lines 39-45).

It should be noted that, according to Sato, once the user has established the number of frequency bands (for example in figure 9, n = 9), Sato never uses fewer than the established number of frequency bands (which in this example is 9) to form the equalizer. In Figure 9, nine frequency bands are shown, and the number of frequency bands stays constant in Figures 10-14 (with 12-14 shown below as an example), and Figures 31-38 (with 33-35 shown below as an example). Therefore, in contrast to the invention recited in at least claim 1, Sato does not teach nor suggest approximating an n band equalizer using fewer than n filters.
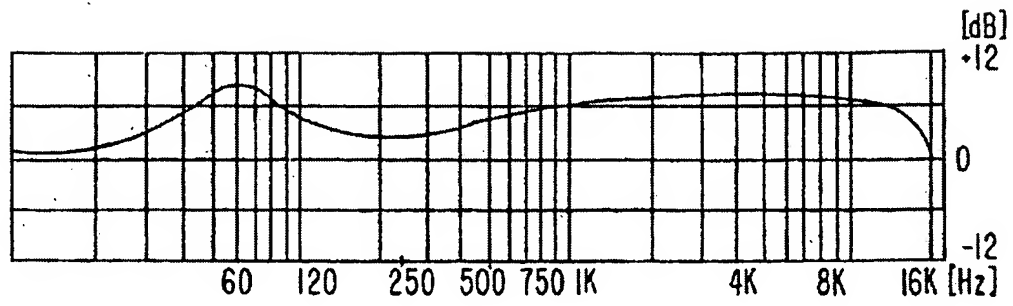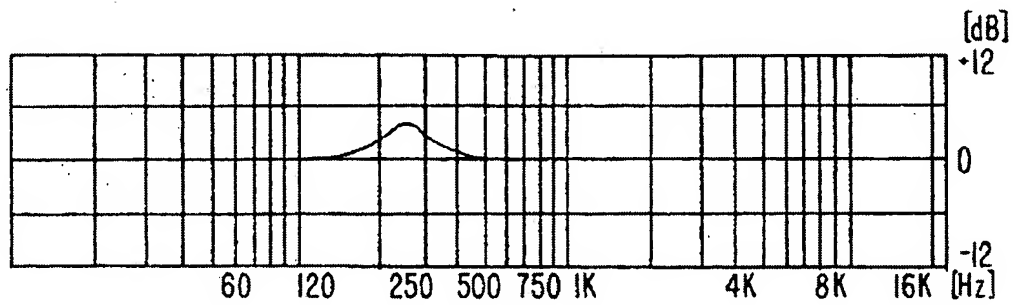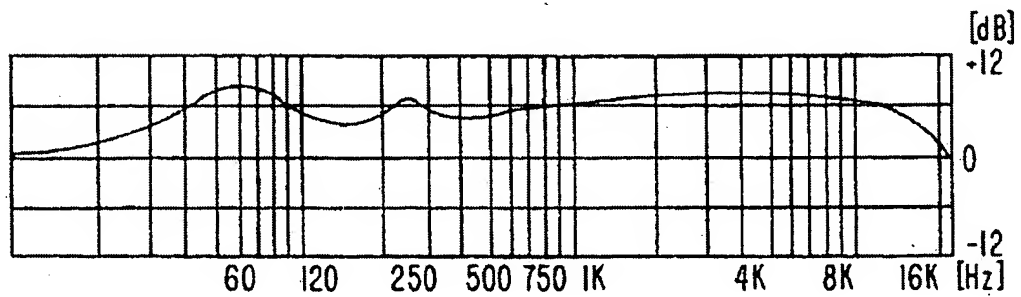
FIG.12

FIG.13

FIG.14

FIG.33

[graph: frequency response curve, x-axis frequencies 60, 120, 250, 500, 1K, 2K, 4K, 8K, 16K [Hz]; y-axis [dB] +12, 0, -12]

FIG.34

[graph: frequency response curve with peak near 120 Hz, x-axis 60, 120, 250, 500, 1K, 2K, 4K, 8K, 16K [Hz]; y-axis [dB] +12, 0, -12]

FIG.35

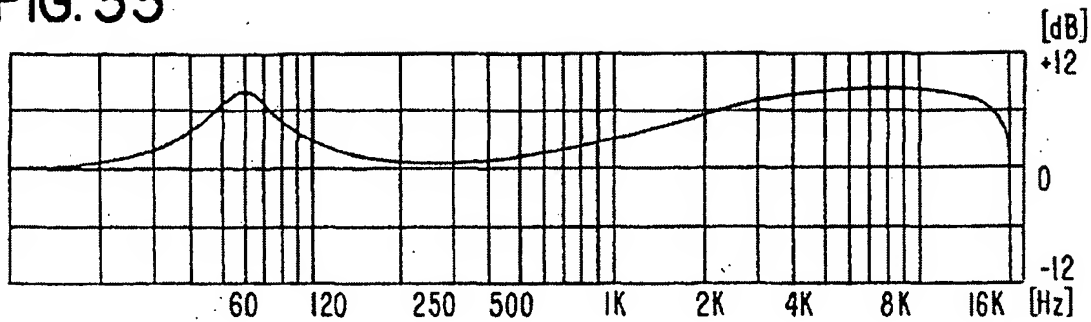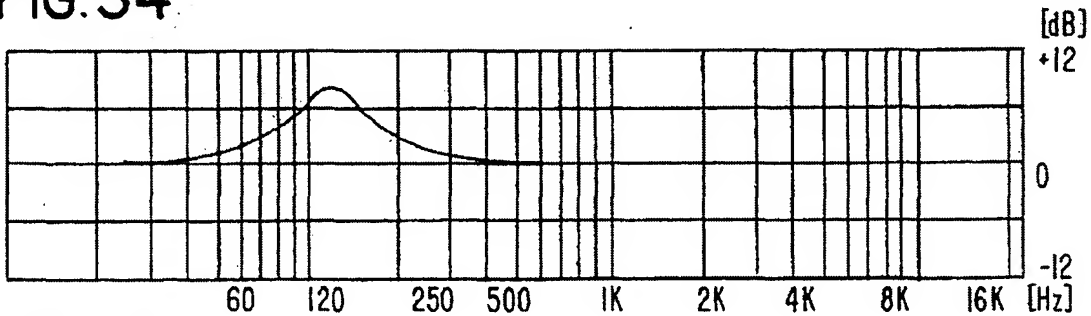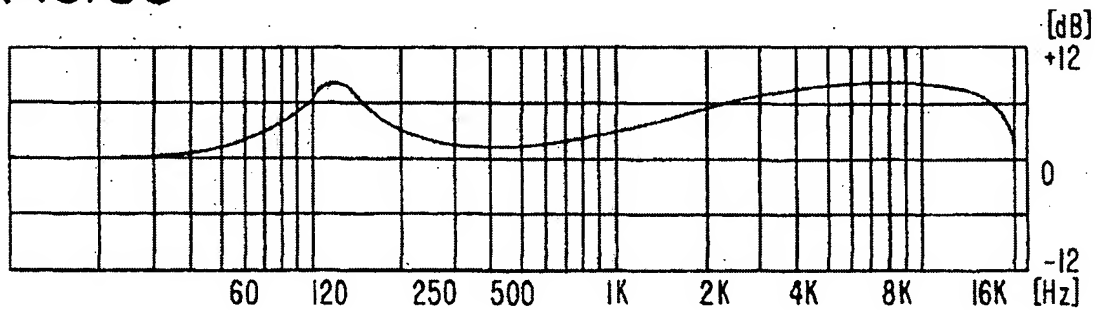[graph: frequency response curve, x-axis 60, 120, 250, 500, 1K, 2K, 4K, 8K, 16K [Hz]; y-axis [dB] +12, 0, -12]

Yoshino discloses method and apparatus for *adjusting* the frequency characteristic of a multi-band audio signal based on target frequency characteristic, i.e., equalizing. (See Yoshino, Abstract.) More specifically, an audio signal is divided into *one fixed-level* band and *one or more variable-level* bands. Then, each of the *variable-level* bands is *adjusted* based on the single *fixed-level* band with respect to the target frequency characteristic. (See Yoshino, paragraphs 14-16.) For example, if the original audio signal has a total of 10 bands, then 1 band is chosen as the fixed-level band and remaining 9 bands are designated as variable-level bands. (See Yoshino, paragraph 61.) Similarly, if the original audio signal has a total of 6 bands, then 1 band is the fixed-level band and the remaining 5 bands are the variable-level bands. (See Yoshino, paragraph 196.)

Wiser discloses a method for organizing audio processing profiles for audio signal types according to delivery bandwidth. (See Col.3 Lines 29-31.) A good combination of pre-processing, filtering, and encoding parameters for a particular audio type and delivery bandwidth can be stored. (See Col.3 Lines 40-45.) When audio files or the particular audio type are played, and the delivery bandwidth is known, the appropriate profile can be used.

In contrast, claim 30 (and the other independent claims) require the approximation of an n-band graphic equalizer using m filters, where m is less than n. More specifically, claim 30 requires the identifying of stock filter patterns in the composite frequency response shape representing the n-band graphic equalizer, creating filters for identified patterns including filter parameters, prioritizing the filters, selecting m filters to approximate the n-band graphic equalizer. None of these limitations are believed to be taught or suggested by any of the prior art cited.

Thus, it is clear that none of these references teach or suggest any kind of filter order reduction, let alone the specifics of the independent claims. Thus, all new claims are believed by the Applicants to be allowable.

Conclusion

In view of the foregoing, it is believed that all pending claims are allowable and applicants respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Should any additional fee be required for any reason related to this document, the Commissioner is hereby authorized to charge said fee to Deposit Account No. 504481, referencing Docket No. APL1P306.

Respectfully submitted,
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